REMARKS

Claims 20-33, 36, 37, 39-41, 44-58, and 60-67 are pending. Claims 1-19, 34, 35, 38, 42, 43, and 59 were previously cancelled. In the present Amendment, Claims 20, 25-27, 31, 32, 36, 39, 41, and 48 are amended and Claims 23 and 24 are cancelled, leaving Claims 21, 22, 28-30, 33, 37, 40, 44-47, 49-58 and 60-67 unchanged.

35 U.S.C. § 103(a) Rejections

Claims 20-28, 30-33, 36, 37, 39-41, 44-49, 51-56, 58, 60-63, and 65-67 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 2,621,685 ("Butz") in view of U.S. Patent No. 5,607,023 "(Palm") and further in view of U.S. Patent No. 3,657,813 ("Knight"). In addition, Claims 20-33, 36, 37, 39-41, 44-58, and 60-67 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Butz in view of Palm and Knight and further in view of U.S. Patent Nos. 5,564,981 ("Iwabuchi") and/or 6,183,368 ("King"). Reconsideration of the rejections is respectfully requested.

To establish a *prima facie* case of obviousness, three basic criteria must be met. *M.P.E.P.* §§ 706.02(j) and 2143.

> First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references or to combine the reference teachings. Second, there must be a reasonable expectation of success. Third, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must be both found in the prior art, not in applicants' disclosure.

Independent Claim 20 an dependent Claims 21, 22, and 25-33

Claim 20 defines a drive mechanism for a power tool, the power tool including a motor including a drive shaft and an output member adapted to support a tool element, the drive mechanism comprising a gear driven by the drive shaft for rotation about an axis, a hub selectively driven by the gear for rotation about the axis, the hub being movable relative to the gear, the hub including a drive member offset from the axis and connected to the output member to drivingly connect the hub to the output member, a drive arm connecting the drive member to the output member to convert rotation of the hub to reciprocation of the output member, the drive arm being pivotably connected to the drive member and being pivotably connected to the output

member, and structure positioned between the gear and the hub, the structure selectively transmitting drive force from the gear to the hub and selectively allowing relative movement between the gear and the hub. Claim 20 specifies that the gear defines a pocket and includes a gear protrusion in the pocket, and that a portion of the hub is supported in the pocket and includes a hub protrusion, the gear protrusion drivingly engaging the hub protrusion. Claim 20 further specifies that the structure includes an elastic member positioned between the gear protrusion and the hub protrusion.

Butz does not teach or suggest a drive mechanism for a power tool including, among other things, a hub selectively driven by the gear for rotation about the axis, the hub being movable relative to the gear, the hub including a drive member offset from the axis and connected to the output member to drivingly connect the hub to the output member. Rather, the tool of Butz includes a shaft 36 having a flywheel 24 press fit onto a splined upper end and a miter gear 40 securely fixed to a lower end of the shaft 36 by a set-screw 39. A dowel pin 29 extends upwardly from an upper end of the flywheel 24.

As noted by the Examiner, Butz also does not teach or suggest a drive mechanism for a power tool including structure positioned between the gear and the hub, the structure selectively transmitting drive force from the gear to the hub and selectively allowing relative movement between the gear and the hub. Rather, the tool of Butz includes a shaft 42 extending horizontally through a tool body or holder 9 and a miter gear 41 securely fixed to an end of the shaft 42 by a set-screw 43. The tool of Butz also includes a shaft 36 extending vertically through the holder 9 and a miter gear 40 securely fixed to an end of the shaft 36 by a set-screw 39. A flywheel 24 is press fit onto a splined upper end of the shaft 36. Rotational motion is transferred directly from the horizontal shaft 42 and the miter gear 41 to the miter gear 40 and the vertical shaft 36.

Moreover, Butz does not teach or suggest a drive mechanism for a power tool including a gear that defines a pocket and includes a gear protrusion in the pocket, and that a portion of the hub is supported in the pocket and includes a hub protrusion, the gear protrusion drivingly engaging the hub protrusion. Butz also does not teach or suggest that the structure includes an elastic member positioned between the gear protrusion and the hub protrusion. Rather, as mentioned above, the flywheel 24 and the miter gear 40 are securely fixed to the shaft 36.

For these and other reasons, Butz does not teach or suggest the subject matter defined by Claim 20.

Palm does not cure the deficiencies of Butz. Palm does not teach or suggest a drive mechanism including, among other things, a hub including a drive member offset from the axis and connected to the output member to drivingly connect the hub to the output member. Rather, the tool 9 of Palm includes an outer hub 716 secured to a shaft 226 and having an inner cylindrical surface 718 and apertures 720 spaced along the inner surface 718. As shown in Fig. 7 of Palm, the outer hub 716 has a smooth front face.

Palm also does not teach or suggest a drive mechanism including a drive arm connecting the drive member to the output member to convert rotation of the hub to reciprocation of the output member, the drive arm being pivotably connected to the drive member and being pivotably connected to the output member. Rather, a lower end of the drive arm 34 of Palm supports a bearing 32 and is secured to the wobble plate member 28. A number of elements, including the drive arm 35 of the secondary wobble plate and a bearing 32 secured to the drive arm 35, are positioned between the drive arm 34 and the inner hub 710 of Palm.

Moreover, Palm does not teach or suggest a drive mechanism for a power tool including structure that includes an elastic member positioned between the gear protrusion and the hub protrusion. Rather, the elements 722 of Palm are supported in apertures 720 formed in the inner cylindrical surface 718 of the outer hub 716 and the outer surface of the inner hub 710. Moreover, as shown in Fig. 7 of Palm, the close engagement between the innermost portions of the inner cylindrical surface 718 of the outer hub 716 and the outermost portions of the inner hub 710, prevents the elements 722 from moving out of the apertures 720 to a position between the innermost portions of the outer hub 716 and the outermost portions of the inner hub 710.

For these and other reasons, Palm does not teach or suggest the subject matter defined by Claim 20.

Knight does not cure the deficiencies of Butz and Palm. Specifically, Knight does not teach or suggest a drive mechanism for a power tool including, among other things, structure positioned between the gear and the hub, the structure selectively transmitting drive force from the gear to the hub and selectively allowing relative movement between the gear and the hub. Rather, the pruning saw 10 of Knight includes a shaft 118 supporting a bevel gear 116, which is keyed to the shaft 118, a cam element 120 positioned above the bevel gear 116, and a spring washer 121 positioned *below* the bevel gear 116 for biasing the bevel gear 116 into frictional engagement with the cam element 120.

Moreover, Knight does not teach or suggest that the gear defines a pocket and includes a gear protrusion in the pocket, and that a portion of the hub is supported in the pocket and includes a hub protrusion, the gear protrusion drivingly engaging the hub protrusion. Knight also does not teach or suggest that the structure includes an elastic member positioned between the gear protrusion and the hub protrusion. Rather, as mentioned above, the spring washer 121 is positioned *below* the bevel gear 116 of Knight. Moreover, the bevel gear 116 has a smooth upper surface and the cam element 120 has a smooth lower surface to form a mechanical slip clutch. See column 3, lines 28-34.

For these and other reasons, Knight does not teach or suggest the subject matter defined by Claim 20.

The Examiner argues that "[i]t would have been obvious to one of ordinary skill in the art to have modified Butz by employing the elastic force transmitters of King or Iwabuchi instead of the elastic force transmitter of Palm, since they are art recognized equivalents known for the same purpose." See Office action, dated September 12, 2006m section 4. However, Applicants respectfully submit that it is improper to combine the teachings of King and/or Iwabuchi with the teachings of Butz, Palm, and Knight.

Before addressing the combination asserted by the Examiner, Applicants will address the King reference and the Iwabushi reference. King does not teach or suggest a drive mechanism for a power tool including, among other things, a motor including a drive shaft and an output member adapted to support a tool element. Rather, King discloses a "[f]lexible [coupling]... for transferring torque from output or drive shafts of devices such as an electric motor or internal combustion engine, to input shafts of various machines or devices, such as fans, packaging machines or pumps." King, Column 1, lines 17-21.

King also does not teach or suggest a hub including a drive member offset from the axis and connected to the output member to drivingly connect the hub to the output mmeber. Rather, the coupling assembly 10 of King has a linear arrangement and includes circular coupling members 14, 16, a generally circular elastomeric spider 18, and a generally circular housing assembly 12 positioned between the first coupling member 14, the spider 18, and the second coupling member 16.

In addition, King does not teach or suggest a drive mechanism for a power tool including, among other things, a drive arm connecting the drive member to the output member to convert

rotation of the hub to reciprocation of the output member, the drive arm being pivotably connected to the drive member and being pivotably connected to the output member. Rather, as mentioned above, the circular coupling members 14, 16, the spider 18, and the housing assembly 12 are all arranged along a common axis.

For these and other reasons, King does not teach or suggest all the claim limitations of independent Claim 20.

Iwabuchi also does not cure the deficiencies of Butz, Palm, and Knight. Iwabuchi does not teach or suggest a drive mechanism for a power tool including, among other things, a motor including a drive shaft and an output member adapted to support a tool element. Rather, Iwabuchi discloses a transmission buffer for "a motor [used] when a window of an automobile is raised or lowered by the turning force of the motor." Iwabuchi, Column 1, lines 18-20.

Iwabuchi also does not teach or suggest a drive mechanism for a power tool including a hub including a drive member offset from the axis and connected to the output member to drivingly connect the hub to the output member. Rather, the power window drive element of Iwabuchi has a linear arrangement and includes a generally circular input rotary body 6, a generally circular output rotary body 11 and a generally circular elastic body 10 positioned between the input rotary body 6 and the output rotary body 11.

In addition, Iwabushi does not teach or suggest a drive mechanism for a power tool including, among other things, a drive arm connecting the drive member to the output member to convert rotation of the hub to reciprocation of the output member, the drive arm being pivotably connected to the drive member and being pivotably connected to the output member. Rather, as mentioned above, the power window drive element of Iwabuchi has a linear arrangement with the output rotary body 11, the elastic body 10, and the input rotary body 6 all being arranged along a common axis.

For these and other reasons, Iwabuchi does not teach or suggest the subject matter defined by Claim 20.

As mentioned above, Applicants respectfully submit that it is not reasonable to combine the teachings of King with the teachings of Butz, Palm, and Knight and that there is no teaching or suggestion to modify the teachings of King as suggested by the Examiner. In addition, Applicants respectfully submit that it is not reasonable to combine the teachings of Iwabushi

with the teachings of Butz, Palm, and Knight and that there is no teaching or suggestion to modify the teachings of Iwabushi as suggested by the Examiner

Assuming arguendo that the reciprocating saws of Butz, Palm, and Knight could be modified as suggested by the Examiner, this is not by itself sufficient to support a finding of obviousness. The prior art must provide a motivation, without the benefit of Applicants' specification, to make the necessary changes in the reference device. Ex parte Chicago Rawhide Mfg. Co., 223 U.S.P.Q. at 353. Deficiencies of the reference cannot be saved by appeals to "common sense" and "basic knowledge" without any evidentiary support. In re Zurko, 258 F.3d at 1385, 59 U.S.P.Q.2d at 1697.

The Examiner points to nothing in the prior art, and King is devoid of any teaching or suggestion to modify the coupling of King, which is "used for transferring torque from output or drive shafts of devices such as an electric motor or internal combustion engine, to input shafts of various machines or devices, such as *fans, packaging machines or pumps*", and to combine this modified coupling with the reciprocating saws of Butz, Palm, and Knight. See, column 1, lines 17-22 (emphasis added).

The Examiner also points to nothing in the prior art, and Iwabushi is devoid of any teaching or suggestion to modify the coupling of Iwabushi, *which is used for raising and lowering an automobile window*, and to combine this modified coupling with the reciprocating saws of Butz, Palm, and Knight.

As illustrated in Butz, Palm, and Knight and as explained below, there are significant differences between reciprocating saws and fans, packaging machines, pumps, and automobile windows, and these differences present significantly different design considerations, making the suggested combination of the teachings of Butz, Palm, Knight, and King and/or Iwabushi inappropriate.

As a starting point, the motion imparted by the respective drive mechanisms of the reciprocating saw and fans, packaging machines, pumps, and automobile windows affect the design and construction of each. Fans, packaging machines, pumps, automobile windows, and reciprocating saws are each typically powered by an electric motor having a rotary output. In the fans, packaging machines, pumps, and automobile windows, the rotary motion of the motor output is transmitted as rotary motion to a fan blade or the like. Accordingly, the drive

mechanisms for such machines are relatively simple. The elements of the gear train all rotate about parallel axes.

In comparison, a reciprocating saw drive mechanism converts the rotary motion of the motor output to reciprocating motion of the spindle (and of the saw blade). As a result, the drive mechanism of the reciprocating saw is more complex. Examples of such saw drive mechanisms include wobble plate drive mechanisms, scotch-yoke drive mechanisms, etc.

The difference between the motion imparted to a linear drive mechanism (e.g., the drive mechanism of a fan, packaging machine, pump, or automobile window) and to the reciprocating saw blade is magnified when the blade binds on the workpiece. The affect of such binding on the drive mechanism of reciprocating saws (and on the operator) is also significantly different. In the linear drive mechanism disclosed in King, any binding will cause motion about the center axis 22, an axis which is parallel to the axes of the elements of the gear train and of the output of the motor. Similarly, in the linear drive mechanism of Iwabushi, any binding will cause motion about a common central axis. In the reciprocating saw, any binding will transmit force along the axis of the reciprocating spindle toward or away from the operator, contrary to the rotary motion of the motor output and contrary to the converting motion of the drive mechanism.

Applicants respectfully submit that the above-described and other significant differences between the design and construction of fans, packaging machines, pumps, and automobile windows and of reciprocating saws provide reasons why one of ordinary skill in the art would not modify the reciprocating saws of Butz, Palm, and Knight to include the coupling spider 18 of King.

Moreover, Butz teaches away from the modification suggested by the Examiner. As discussed above, in the reciprocating saw of Butz, a flywheel 24 is press fit onto a splined upper end of a shaft 36, and a miter gear 40 is positioned below the flywheel 24 and is securely fixed to a lower end of the shaft 36 by a set-screw 39.

With the proposed modification of Butz, "elements 36, 24, and 29 would be as one with the inner hub, and thus the inner hub would have an eccentric output member (29)." Office action, dated September 12, 2006, section 3. With this proposed modification, the shaft 36 would presumably be integrally formed with either the miter gear 40 or the flywheel 24, outwardly extending protrusions would presumably be added to the underside of the flywheel 24 and the top surface of the miter gear 40, and an elastic element would presumably be positioned

between the protrusions of the flywheel 24 and the protrusions of the miter gear 40. However, with this proposed modification, the Examiner fails to disclose how the protrusions of the flywheel 24 and the protrusions of the miter gear 40 would contact each other through the bearing 34. Moreover, if the bearing 34 was removed to accommodate such a modification, the connecting rod 23 and the flywheel 24 would be unsupported during operation and would tilt downwardly toward the lower portion of the saw, thereby disrupting the travel path of the saw blade 10 and rendering the saw inoperable.

In addition, if the flywheel 24 and the miter gear 40 were to be modified as suggested by the Examiner to include these protrusions and to accommodate elastic members between these protrusions, significant portions of the flywheel 24 and the miter gear 40 would have to be removed to provide these protrusions. With the material removed from the flywheel 24 and/or the miter gear 40, the reciprocating saw of Butz may not be able to withstand demolition operations which is, generally, the intended use of a reciprocating saw. If the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. In re Gordon, 733 F.2d at 902, 221 U.S.P.Q. at 1127.

In summary, Butz, Palm, Knight, and King and/or Iwabushi do not teach or suggest the modification suggested by the Examiner and, in fact, the references teach away from such a combination. It is improper to combine references where the references teach away from such a combination. In re Grasselli, 713 F.2d at 743, 218 U.S.P.Q. at 779. Therefore, Applicants respectfully submit that the Examiner has failed to present a *prima facia* case of obviousness of Claim 20 based upon the prior art as required by 35 U.S.C. § 103.

For these and other reasons, the prior art does not teach or suggest the subject matter defined by independent Claim 20. Accordingly, independent Claim 20 is allowable. Dependent Claims 21, 22, and 25-33 depend from Claim 20 and are allowable for the same and other reasons. In addition, the additional subject matter defined by the dependent claims provides separate bases for allowance.

Independent Claim 36 and dependent Claims 37 and 44-52

Claim 36 defines a power tool comprising a housing, a motor supported by the housing and having a drive shaft, an output member supported by the housing and adapted to support a

tool element, and a drive mechanism supported by the housing and operable to drive the output member, the drive mechanism including a gear driven by the drive shaft for rotation about an axis and including a protrusion, a hub selectively driven by the gear for rotation about the axis, the hub being movable relative to the gear and including a hub protrusion and a drive member offset from the axis, the gear protrusion drivingly engaging the hub protrusion, a drive arm pivotably connected to the drive member and the output member and being operable to convert rotation of the hub to reciprocation of the output member, and structure positioned between the gear protrusion and the hub protrusion, the structure selectively transmitting drive force from the gear to the hub and selectively allowing relative movement between the gear and the hub. Claim 36 specifies that at least a portion of the structure is positioned between radially overlapping portions of the gear protrusion and the hub protrusion.

Butz does not teach or suggest a power tool including, among other things, a hub selectively driven by the gear for rotation about the axis, the hub being movable relative to the gear and including a drive member offset from the axis and connected to the output member to drivingly connect the hub to the output member. Rather, the tool of Butz includes a shaft 36 having a flywheel 24 press fit onto a splined upper end and a miter gear 40 securely fixed to a lower end of the shaft 36 by a set-screw 39. A dowel pin 29 extends upwardly from an upper end of the flywheel 24.

As noted by the Examiner, Butz also does not teach or suggest a power tool including structure positioned between the gear protrusion and the hub protrusion, the structure selectively transmitting drive force from the gear to the hub and selectively allowing relative movement between the gear and the hub. Rather, the tool of Butz includes a shaft 42 extending horizontally through a tool body or holder 9 and a miter gear 41 securely fixed to an end of the shaft 42 by a set-screw 43. The tool of Butz also includes a shaft 36 extending vertically through the holder 9 and a miter gear 40 securely fixed to an end of the shaft 36 by a set-screw 39. A flywheel 24 is press fit onto a splined upper end of the shaft 36. Rotational motion is transferred directly from the horizontal shaft 42 and the miter gear 41 to the miter gear 40 and the vertical shaft 36.

Moreover, Butz does not teach or suggest a power tool including a gear including a protrusion and a hub being movable relative to the gear and including a hub protrusion and a drive member offset from the axis, the gear protrusion drivingly engaging the hub protrusion. Butz also does not teach or suggest that at least a portion of the structure is positioned between

radially overlapping portions of the gear protrusion and the hub protrusion. Rather, as mentioned above, the flywheel 24 and the miter gear 40 are securely fixed to the shaft 36.

For these and other reasons, Butz does not teach or suggest the subject matter defined by Claim 36.

Palm does not cure the deficiencies of Butz. Palm does not teach or suggest a power tool including, among other things, a hub selectively driven by the gear for rotation about the axis, the hub being movable relative to the gear and including a drive member offset from the axis. Rather, the tool 9 of Palm includes an outer hub 716 secured to a shaft 226 and having an inner cylindrical surface 718 and apertures 720 spaced along the inner surface 718. As shown in Fig. 7 of Palm, the outer hub 716 has a smooth front face.

Palm also does not teach or suggest a power tool including a drive arm pivotably connected to the drive member and the output member and being operable to convert rotation of the hub to reciprocation of the output member. Rather, a lower end of the drive arm 34 of Palm supports a bearing 32 and is secured to the wobble plate member 28. A number of elements, including the drive arm 35 of the secondary wobble plate and a bearing 32 secured to the drive arm 35, are positioned between the drive arm 34 and the inner hub 710 of Palm.

Moreover, Palm does not teach or suggest a power tool including structure positioned between the gear protrusion and the hub protrusion, the structure selectively transmitting drive force from the gear to the hub and selectively allowing relative movement between the gear and the hub, and that at least a portion of the structure is positioned between radially overlapping portions of the gear protrusion and the hub protrusion. Rather, the elements 722 of Palm are supported in apertures 720 formed in the inner cylindrical surface 718 of the outer hub 716 and the outer surface of the inner hub 710. Moreover, as shown in Fig. 7 of Palm, the close engagement between the innermost portions of the inner cylindrical surface 718 of the outer hub 716 and the outermost portions of the inner hub 710, prevents the elements 722 from moving out of the apertures 720 to a position between the innermost portions of the outer hub 716 and the outermost portions of the inner hub 710.

For these and other reasons, Palm does not teach or suggest the subject matter defined by Claim 36.

Knight does not cure the deficiencies of Butz and Palm. Specifically, Knight does not teach or suggest a power tool including, among other things, structure positioned between the gear protrusion and the hub protrusion, the structure selectively transmitting drive force from the gear to the hub and selectively allowing relative movement between the gear and the hub. Rather, the pruning saw 10 of Knight includes a shaft 118 supporting a bevel gear 116, which is keyed to the shaft 118, a cam element 120 positioned above the bevel gear 116, and a spring washer 121 positioned *below* the bevel gear 116 for biasing the bevel gear 116 into frictional engagement with the cam element 120.

Moreover, Knight does not teach or suggest that at least a portion of the structure is positioned between radially overlapping portions of the gear protrusion and the hub protrusion. Rather, as mentioned above, the spring washer 121 is positioned *below* the bevel gear 116 of Knight. Moreover, the bevel gear 116 has a smooth upper surface and the cam element 120 has a smooth lower surface to form a mechanical slip clutch. See column 3, lines 28-34.

For these and other reasons, Knight does not teach or suggest the subject matter defined by Claim 36.

The Examiner argues that "[i]t would have been obvious to one of ordinary skill in the art to have modified Butz by employing the elastic force transmitters of King or Iwabuchi instead of the elastic force transmitter of Palm, since they are art recognized equivalents known for the same purpose." See Office action, dated September 12, 2006, section 4. However, Applicants respectfully submit that it is improper to combine the teachings of King and/or Iwabuchi with the teachings of Butz, Palm, and Knight.

Before addressing the combination asserted by the Examiner, Applicants will address the King reference and the Iwabushi reference. King does not teach or suggest a power tool including, among other things, a motor supported by the housing and having a drive shaft and an output member supported by the housing and adapted to support a tool element. Rather, King discloses a "[f]lexible [coupling]... for transferring torque from output or drive shafts of devices such as an electric motor or internal combustion engine, to input shafts of various machines or devices, such as fans, packaging machines or pumps." King, Column 1, lines 17-21.

King also does not teach or suggest a power tool including, among other things, a hub including a drive member offset from the axis. Rather, the coupling assembly 10 of King has a linear arrangement and includes circular coupling members 14, 16, a generally circular

elastomeric spider 18, and a generally circular housing assembly 12 positioned between the first coupling member 14, the spider 18, and the second coupling member 16.

In addition, King does not teach or suggest a power tool including, among other things, a drive arm pivotably connected to the drive member and the output member and being operable to convert rotation of the hub to reciprocating of the output member. Rather, as mentioned above, the circular coupling members 14, 16, the spider 18, and the housing assembly 12 are all arranged along a common axis.

For these and other reasons, King does not teach or suggest all the claim limitations of independent Claim 36.

Iwabuchi also does not cure the deficiencies of Butz, Palm, and Knight. Iwabuchi does not teach or suggest a power tool including, among other things, a motor supported by the housing and having a drive shaft and an output member supported by the housing and adapted to support a tool element. Rather, Iwabuchi discloses a transmission buffer for "a motor [used] when a window of an automobile is raised or lowered by the turning force of the motor." Iwabuchi, Column 1, lines 18-20.

Iwabuchi also does not teach or suggest a power tool including a hub including a drive member offset from the axis. Rather, the power window drive element of Iwabuchi has a linear arrangement and includes a generally circular input rotary body 6, a generally circular output rotary body 11 and a generally circular elastic body 10 positioned between the input rotary body 6 and the output rotary body 11.

In addition, Iwabushi does not teach or suggest a drive arm pivotably connected to the drive member and the output member and being operable to convert rotation of the hub to reciprocating of the output member. Rather, as mentioned above, the power window drive element of Iwabuchi has a linear arrangement with the output rotary body 11, the elastic body 10, and the input rotary body 6 all being arranged along a common axis.

For these and other reasons, Iwabuchi does not teach or suggest the subject matter defined by Claim 36.

As mentioned above, Applicants respectfully submit that it is not reasonable to combine the teachings of King with the teachings of Butz, Palm, and Knight and that there is no teaching or suggestion to modify the teachings of King as suggested by the Examiner. In addition, Applicants respectfully submit that it is not reasonable to combine the teachings of Iwabushi

with the teachings of Butz, Palm, and Knight and that there is no teaching or suggestion to modify the teachings of Iwabushi as suggested by the Examiner

Assuming arguendo that the reciprocating saws of Butz, Palm, and Knight could be modified as suggested by the Examiner, this is not by itself sufficient to support a finding of obviousness. The prior art must provide a motivation, without the benefit of Applicants' specification, to make the necessary changes in the reference device. Ex parte Chicago Rawhide Mfg. Co., 223 U.S.P.Q. at 353. Deficiencies of the reference cannot be saved by appeals to "common sense" and "basic knowledge" without any evidentiary support. In re Zurko, 258 F.3d at 1385, 59 U.S.P.Q.2d at 1697.

The Examiner points to nothing in the prior art, and King is devoid of any teaching or suggestion to modify the coupling of King, which is "used for transferring torque from output or drive shafts of devices such as an electric motor or internal combustion engine, to input shafts of various machines or devices, such as *fans, packaging machines or pumps*", and to combine this modified coupling with the reciprocating saws of Butz, Palm, and Knight. See, column 1, lines 17-22 (emphasis added).

The Examiner also points to nothing in the prior art, and Iwabushi is devoid of any teaching or suggestion to modify the power window drive element of Iwabushi, and to combine this modified coupling with the reciprocating saws of Butz, Palm, and Knight.

As illustrated in Butz, Palm, and Knight and as explained below, there are significant differences between reciprocating saws and fans, packaging machines, pumps, and the drive element of an automobile window, and these differences present significantly different design considerations, making the suggested combination of the teachings of Butz, Palm, Knight, and King and/or Iwabushi inappropriate.

As a starting point, the motion imparted by the respective drive mechanisms of the reciprocating saw and fans, packaging machines, pumps, and automobile windows affect the design and construction of each. Fans, packaging machines, pumps, automobile windows, and reciprocating saws are each typically powered by an electric motor having a rotary output. In the fans, packaging machines, pumps, and automobile windows of Iwabushi and King, the rotary motion of the motor output is transmitted as rotary motion to a fan blade or the like. Accordingly, the drive mechanisms for such machines are relatively simple. The elements of the gear train all rotate about parallel axes.

In comparison, a reciprocating saw drive mechanism converts the rotary motion of the motor output to reciprocating motion of the spindle (and of the saw blade). As a result, the drive mechanism of the reciprocating saw is more complex. Examples of such saw drive mechanisms include wobble plate drive mechanisms, scotch-yoke drive mechanisms, etc.

The difference between the motion imparted to a linear drive mechanism (e.g., the drive mechanism of a fan, packaging machine, pump, or automobile window) and to the reciprocating saw blade is magnified when the blade binds on the workpiece. The affect of such binding on the drive mechanism of reciprocating saws (and on the operator) is also significantly different. In the linear drive mechanism disclosed in King, any binding will cause motion about the center axis 22, an axis which is parallel to the axes of the elements of the gear train and of the output of the motor. Similarly, in the linear drive mechanism of Iwabushi, any binding will cause motion about a common central axis. In the reciprocating saw, any binding will transmit force along the axis of the reciprocating spindle toward or away from the operator, contrary to the rotary motion of the motor output and contrary to the converting motion of the drive mechanism.

Applicants respectfully submit that the above-described and other significant differences between the design and construction of fans, packaging machines, pumps, and automobile windows and of reciprocating saws provide reasons why one of ordinary skill in the art would not modify the reciprocating saws of Butz, Palm, and Knight to include the coupling spider 18 of King. In addition, Applicants respectfully submit that the above-described and other significant differences between the design and construction of fans, packaging machines, pumps, and automobile windows and of reciprocating saws provide reasons why one of ordinary skill in the art would not modify the reciprocating saws of Butz, Palm, and Knight to include the coupling elastic body 10 of Iwabushi.

Moreover, Butz teaches away from the modification suggested by the Examiner. As discussed above, in the reciprocating saw of Butz, a flywheel 24 is press fit onto a splined upper end of a shaft 36, and a miter gear 40 is positioned below the flywheel 24 and is securely fixed to a lower end of the shaft 36 by a set-screw 39.

With the proposed modification of Butz, "elements 36, 24, and 29 would be as one with the inner hub, and thus the inner hub would have an eccentric output member (29)." Office action, dated September 12, 2006, section 3. With this proposed modification, the shaft 36 would presumably be integrally formed with either the miter gear 40 or the flywheel 24,

outwardly extending protrusions would presumably be added to the underside of the flywheel 24 and the top surface of the miter gear 40, and an elastic element would presumably be positioned between the protrusions of the flywheel 24 and the protrusions of the miter gear 40. However, with this proposed modification, the Examiner fails to disclose how the protrusions of the flywheel 24 and the protrusions of the miter gear 40 would contact each other through the bearing 34. Moreover, if the bearing 34 were removed to accommodate such a modification, the connecting rod 23 and the flywheel 24 would be unsupported during operation and would tilt downwardly toward the lower portion of the saw, thereby disrupting the travel path of the saw blade 10 and rendering the saw inoperable.

In addition, if the flywheel 24 and the miter gear 40 were to be modified as suggested by the Examiner to include these protrusions and to accommodate elastic members between these protrusions, significant portions of the flywheel 24 and the miter gear 40 would have to be removed to provide these protrusions. With the material removed from the flywheel 24 and/or the miter gear 40, the reciprocating saw of Butz may not be able to withstand demolition operations which is, generally, the intended use of a reciprocating saw. If the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. In re Gordon, 733 F.2d at 902, 221 U.S.P.Q. at 1127.

In summary, Butz, Palm, Knight, and King and/or Iwabushi do not teach or suggest the modification suggested by the Examiner and, in fact, the references teach away from such a combination. It is improper to combine references where the references teach away from such a combination. In re Grasselli, 713 F.2d at 743, 218 U.S.P.Q. at 779. Therefore, Applicants respectfully submit that the Examiner has failed to present a *prima facia* case of obviousness of Claim 36 based upon the prior art as required by 35 U.S.C. § 103.

For these and other reasons, the prior art does not teach or suggest the subject matter defined by independent Claim 36. Accordingly, independent Claim 36 is allowable. Dependent Claims 37 and 44-52 depend from Claim 36 and are allowable for the same and other reasons. In addition, the additional subject matter defined by the dependent claims provides separate bases for allowance.

Independent Claim 39 and dependent Claims 40 and 53-60

Claim 39 defines a reciprocating saw comprising a housing, a motor supported by the housing and having a drive shaft, a spindle supported by the housing and adapted to support a saw blade, and a drive mechanism supported by the housing and operable to drive the spindle, the drive mechanism including a gear driven by the drive shaft for rotation about an axis, a hub selectively driven by the gear for rotation about the axis, the hub being movable relative to the gear and including a drive member offset from the axis and connected to the output member to drivingly connect the hub to the output member, a drive arm having a first end and a second end and being operable to convert rotation of the hub to reciprocation of the output member, the first end being connected to the drive member for pivoting movement relative to the hub and the second end being pivotably connected to the output member, and structure to absorb impact positioned between the gear and the hub, the structure selectively transmitting drive force from the gear to the hub and allowing relative movement between the gear and the hub to absorb an impact on the spindle. Claim 39 specifies that the gear protrusion includes a first side, that the hub protrusion includes a first side, and that the at least a portion of the structure is positioned between the gear protrusion first side and the hub protrusion first side.

Butz does not teach or suggest a reciprocating saw including, among other things, a hub selectively driven by the gear for rotation about the axis, the hub being movable relative to the gear and including a drive member offset from the axis and connected to the output member to drivingly connect the hub to the output member. Rather, the tool of Butz includes a shaft 36 having a flywheel 24 press fit onto a splined upper end and a miter gear 40 securely fixed to a lower end of the shaft 36 by a set-screw 39. A dowel pin 29 extends upwardly from an upper end of the flywheel 24.

As noted by the Examiner, Butz also does not teach or suggest a reciprocating saw including structure to absorb impact positioned between the gear and the hub, the structure selectively transmitting drive force from the gear to the hub and allowing relative movement between the gear and the hub to absorb an impact on the spindle. Rather, the tool of Butz includes a shaft 42 extending horizontally through a tool body or holder 9 and a miter gear 41 securely fixed to an end of the shaft 42 by a set-screw 43. The tool of Butz also includes a shaft 36 extending vertically through the holder 9 and a miter gear 40 securely fixed to an end of the

shaft 36 by a set-screw 39. A flywheel 24 is press fit onto a splined upper end of the shaft 36. Rotational motion is transferred directly from the horizontal shaft 42 and the miter gear 41 to the miter gear 40 and the vertical shaft 36.

In addition, Butz does not teach or suggest a reciprocating saw including a gear protrusion that includes a first side, that the hub protrusion includes a first side, and that at least a portion of the structure is positioned between the gear protrusion first side and the hub protrusion first side. Rather, as mentioned above, the flywheel 24 and the miter gear 40 are securely fixed to the shaft 36.

For these and other reasons, Butz does not teach or suggest the subject matter defined by Claim 39.

Palm does not cure the deficiencies of Butz. Palm does not teach or suggest a reciprocating saw including, among other things, a hub selectively driven by the gear for rotation about the axis, the hub being movable relative to the gear and including a drive member offset from the axis and connected to the output member to drivingly connect the hub to the output member. Rather, the tool 9 of Palm includes an outer hub 716 secured to a shaft 226 and having an inner cylindrical surface 718 and apertures 720 spaced along the inner surface 718. As shown in Fig. 7 of Palm, the outer hub 716 has a smooth front face.

Palm also does not teach or suggest a reciprocating saw including a drive arm having a first end and a second end and being operable to convert rotation of the hub to reciprocation of the output member, the first end being connected to the drive member for pivoting movement relative to the hub and the second end being pivotably connected to the output member. Rather, a lower end of the drive arm 34 of Palm supports a bearing 32 and is secured to the wobble plate member 28. A number of elements, including the drive arm 35 of the secondary wobble plate and a bearing 32 secured to the drive arm 35, are positioned between the drive arm 34 and the inner hub 710 of Palm.

In addition, Palm does not teach or suggest a reciprocating saw including a gear protrusion that includes a first side, that the hub protrusion includes a first side, and that at least a portion of the structure is positioned between the gear protrusion first side and the hub protrusion first side. Rather, the elements 722 of Palm are supported in apertures 720 formed in the inner cylindrical surface 718 of the outer hub 716 and the outer surface of the inner hub 710. Moreover, as shown in Fig. 7 of Palm, the close engagement between the innermost portions of

the inner cylindrical surface 718 of the outer hub 716 and the outermost portions of the inner hub 710, prevents the elements 722 from moving out of the apertures 720 to a position between the innermost portions of the outer hub 716 and the outermost portions of the inner hub 710.

For these and other reasons, Palm does not teach or suggest the subject matter defined by Claim 39.

Knight does not cure the deficiencies of Butz and Palm. Specifically, Knight does not teach or suggest a reciprocating saw including, among other things, structure to absorb impact positioned between the gear and the hub, the structure selectively transmitting drive force from the gear to the hub and allowing relative movement between the gear and the hub to absorb an impact on the spindle. In addition, Knight does not teach or suggest a reciprocating saw including a gear protrusion that includes a first side, that the hub protrusion includes a first side, and that at least a portion of the structure is positioned between the gear protrusion first side and the hub protrusion first side. Rather, the pruning saw 10 of Knight includes a shaft 118 supporting a bevel gear 116, which is keyed to the shaft 118, a cam element 120 positioned above the bevel gear 116, and a spring washer 121 positioned *below* the bevel gear 116 for biasing the bevel gear 116 into frictional engagement with the cam element 120.

For these and other reasons, Knight does not teach or suggest the subject matter defined by Claim 39.

The Examiner argues that "[i]t would have been obvious to one of ordinary skill in the art to have modified Butz by employing the elastic force transmitters of King or Iwabuchi instead of the elastic force transmitter of Palm, since they are art recognized equivalents known for the same purpose." See Office action, dated September 12, 2006m section 4. However, Applicants respectfully submit that it is improper to combine the teachings of King and/or Iwabuchi with the teachings of Butz, Palm, and Knight.

Before addressing the combination asserted by the Examiner, Applicants will address the King reference and the Iwabushi reference. King does not teach or suggest a reciprocating saw including, among other things, a motor supported by the housing and having a drive shaft and a spindle supported by the housing and operable to support a saw blade. Rather, King discloses a "[f]lexible [coupling]... for transferring torque from output or drive shafts of devices such as an electric motor or internal combustion engine, to input shafts of various machines or devices, such as fans, packaging machines or pumps." King, Column 1, lines 17-21.

King also does not teach or suggest a reciprocating saw including, among other things, a hub including a drive member offset from the axis and connected to the output member to drivingly connect the hub to the output member. Rather, the coupling assembly 10 of King has a linear arrangement and includes circular coupling members 14, 16, a generally circular elastomeric spider 18, and a generally circular housing assembly 12 positioned between the first coupling member 14, the spider 18, and the second coupling member 16.

In addition, King does not teach or suggest a reciprocating saw including, among other things, a drive arm having a first end and a second end and being operable to convert rotation of the hub to reciprocation of the output member, the first end being connected to the drive member for pivoting movement relative to the hub and the second end being pivotably connected to the output member. Rather, as mentioned above, the circular coupling members 14, 16, the spider 18, and the housing assembly 12 are all arranged along a common axis.

For these and other reasons, King does not teach or suggest all the claim limitations of independent Claim 39.

Iwabuchi also does not cure the deficiencies of Butz, Palm, and Knight. Iwabuchi does not teach or suggest a reciprocating saw including, among other things, a motor supported by the housing and having a drive shaft and a spindle supported by the housing and adapted to support a saw blade. Rather, Iwabuchi discloses a transmission buffer for "a motor [used] when a window of an automobile is raised or lowered by the turning force of the motor." Iwabuchi, Column 1, lines 18-20.

Iwabuchi also does not teach or suggest a reciprocating saw including a hub including a drive member offset from the axis and connected to the output member to drivingly connect the hub to the output member. Rather, the power window drive element of Iwabuchi has a linear arrangement and includes a generally circular input rotary body 6, a generally circular output rotary body 11 and a generally circular elastic body 10 positioned between the input rotary body 6 and the output rotary body 11.

In addition, Iwabushi does not teach or suggest a reciprocating saw including a drive arm having a first end and a second end and being operable to convert rotation of the hub to reciprocation of the output member, the first end being connected to the drive member for pivoting movement relative to the hub and the second end being pivotably connected to the output member. Rather, as mentioned above, the power window drive element of Iwabuchi has a

linear arrangement with the output rotary body 11, the elastic body 10, and the input rotary body 6 all being arranged along a common axis.

For these and other reasons, Iwabuchi does not teach or suggest the subject matter defined by Claim 39.

As mentioned above, Applicants respectfully submit that it is not reasonable to combine the teachings of King with the teachings of Butz, Palm, and Knight and that there is no teaching or suggestion to modify the teachings of King as suggested by the Examiner. In addition, Applicants respectfully submit that it is not reasonable to combine the teachings of Iwabushi with the teachings of Butz, Palm, and Knight and that there is no teaching or suggestion to modify the teachings of Iwabushi as suggested by the Examiner

Assuming arguendo that the reciprocating saws of Butz, Palm, and Knight could be modified as suggested by the Examiner, this is not by itself sufficient to support a finding of obviousness. The prior art must provide a motivation, without the benefit of Applicants' specification, to make the necessary changes in the reference device. Ex parte Chicago Rawhide Mfg. Co., 223 U.S.P.Q. at 353. Deficiencies of the reference cannot be saved by appeals to "common sense" and "basic knowledge" without any evidentiary support. In re Zurko, 258 F.3d at 1385, 59 U.S.P.Q.2d at 1697.

The Examiner points to nothing in the prior art, and King is devoid of any teaching or suggestion to modify the coupling of King, which is "used for transferring torque from output or drive shafts of devices such as an electric motor or internal combustion engine, to input shafts of various machines or devices, such as *fans, packaging machines or pumps*", and to combine this modified coupling with the reciprocating saws of Butz, Palm, and Knight. See, column 1, lines 17-22 (emphasis added).

The Examiner also points to nothing in the prior art, and Iwabushi is devoid of any teaching or suggestion to modify the power window drive element of Iwabushi, and to combine this modified element with the reciprocating saws of Butz, Palm, and Knight.

As illustrated in Butz, Palm, and Knight and as explained below, there are significant differences between reciprocating saws and fans, packaging machines, pumps, and the drive element of an automobile window, and these differences present significantly different design considerations, making the suggested combination of the teachings of Butz, Palm, Knight, and King and/or Iwabushi inappropriate.

As a starting point, the motion imparted by the respective drive mechanisms of the reciprocating saw and fans, packaging machines, pumps, and automobile windows affect the design and construction of each. Fans, packaging machines, pumps, automobile windows, and reciprocating saws are each typically powered by an electric motor having a rotary output. In the fans, packaging machines, pumps, and automobile windows of Iwabushi and King, the rotary motion of the motor output is transmitted as rotary motion to a fan blade or the like. Accordingly, the drive mechanisms for such machines are relatively simple. The elements of the gear train all rotate about parallel axes.

In comparison, a reciprocating saw drive mechanism converts the rotary motion of the motor output to reciprocating motion of the spindle (and of the saw blade). As a result, the drive mechanism of the reciprocating saw is more complex. Examples of such saw drive mechanisms include wobble plate drive mechanisms, scotch-yoke drive mechanisms, etc.

The difference between the motion imparted to a linear drive mechanism (e.g., the drive mechanism of a fan, packaging machine, pump, or automobile window) and to the reciprocating saw blade is magnified when the blade binds on the workpiece. The affect of such binding on the drive mechanism of reciprocating saws (and on the operator) is also significantly different. In the linear drive mechanism disclosed in King, any binding will cause motion about the center axis 22, an axis which is parallel to the axes of the elements of the gear train and of the output of the motor. Similarly, in the linear drive mechanism of Iwabushi, any binding will cause motion about a common central axis. In the reciprocating saw, any binding will transmit force along the axis of the reciprocating spindle toward or away from the operator, contrary to the rotary motion of the motor output and contrary to the converting motion of the drive mechanism.

Applicants respectfully submit that the above-described and other significant differences between the design and construction of fans, packaging machines, pumps, and automobile windows and of reciprocating saws provide reasons why one of ordinary skill in the art would not modify the reciprocating saws of Butz, Palm, and Knight to include the coupling spider 18 of King. In addition, Applicants respectfully submit that the above-described and other significant differences between the design and construction of fans, packaging machines, pumps, and automobile windows and of reciprocating saws provide reasons why one of ordinary skill in the art would not modify the reciprocating saws of Butz, Palm, and Knight to include the elastic body 10 of Iwabushi.

Moreover, Butz teaches away from the modification suggested by the Examiner. As discussed above, in the reciprocating saw of Butz, a flywheel 24 is press fit onto a splined upper end of a shaft 36, and a miter gear 40 is positioned below the flywheel 24 and is securely fixed to a lower end of the shaft 36 by a set-screw 39.

With the proposed modification of Butz, "elements 36, 24, and 29 would be as one with the inner hub, and thus the inner hub would have an eccentric output member (29)." Office action, dated September 12, 2006, section 3. With this proposed modification, the shaft 36 would presumably be integrally formed with either the miter gear 40 or the flywheel 24, outwardly extending protrusions would presumably be added to the underside of the flywheel 24 and the top surface of the miter gear 40, and an elastic element would presumably be positioned between the protrusions of the flywheel 24 and the protrusions of the miter gear 40. However, with this proposed modification, the Examiner fails to disclose how the protrusions of the flywheel 24 and the protrusions of the miter gear 40 would contact each other through the bearing 34. Moreover, if the bearing 34 was removed to accommodate such a modification, the connecting rod 23 and the flywheel 24 would be unsupported during operation and would tilt downwardly toward the lower portion of the saw, thereby disrupting the travel path of the saw blade 10 and rendering the saw inoperable.

In addition, if the flywheel 24 and the miter gear 40 were to be modified as suggested by the Examiner to include these protrusions and to accommodate elastic members between these protrusions, significant portions of the flywheel 24 and the miter gear 40 would have to be removed to provide these protrusions. With the material removed from the flywheel 24 and/or the miter gear 40, the reciprocating saw of Butz may not be able to withstand demolition operations which is, generally, the intended use of a reciprocating saw. If the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. In re Gordon, 733 F.2d at 902, 221 U.S.P.Q. at 1127.

In summary, Butz, Palm, Knight, and King and/or Iwabushi do not teach or suggest the modification suggested by the Examiner and, in fact, the references teach away from such a combination. It is improper to combine references where the references teach away from such a combination. In re Grasselli, 713 F.2d at 743, 218 U.S.P.Q. at 779. Therefore, Applicants

respectfully submit that the Examiner has failed to present a *prima facia* case of obviousness of Claim 39 based upon the prior art as required by 35 U.S.C. § 103.

For these and other reasons, the prior art does not teach or suggest the subject matter defined by independent Claim 39. Accordingly, independent Claim 39 is allowable. Dependent Claims 40, 53-58 and 60 depend from Claim 39 and are allowable for the same and other reasons. In addition, the additional subject matter defined by the dependent claims provides separate bases for allowance.

Independent Claim 41 and dependent Claims 61-67

Claim 41 defines a reciprocating saw comprising a housing, a motor supported by the housing and having a drive shaft, a spindle supported by the housing and adapted to support a saw blade, and a drive mechanism supported by the housing and operable to drive the spindle, the drive mechanism including a gear driven by the drive shaft for rotation about an axis, a hub selectively driven by the gear for rotation about the axis, the hub being movable relative to the gear and including a drive member offset from the axis, a drive arm pivotably connected to the drive member and the spindle to convert rotation of the hub to reciprocation of the spindle, and structure to absorb impact positioned between the gear and the hub, the structure selectively transmitting drive force from the gear to the hub and allowing relative movement between the gear and the hub to absorb an impact on the spindle. Claim 41 specifies that the gear defines a pocket and includes a gear protrusion in the pocket, that a portion of the hub is supported in the pocket and includes a hub protrusion, the gear protrusion drivingly engaging the hub protrusion, and that at least a portion of the structure is positioned between radially overlapping portions of the gear protrusion and the hub protrusion.

Butz does not teach or suggest a reciprocating saw including, among other things, a hub selectively driven by the gear for rotation about the axis, the hub being movable relative to the gear and including a drive member offset from the axis. Rather, the tool of Butz includes a shaft 36 having a flywheel 24 press fit onto a splined upper end and a miter gear 40 securely fixed to a lower end of the shaft 36 by a set-screw 39. A dowel pin 29 extends upwardly from an upper end of the flywheel 24.

As noted by the Examiner, Butz also does not teach or suggest a reciprocating saw including structure to absorb impact positioned between the gear and the hub, the structure

selectively transmitting drive force from the gear to the hub and allowing relative movement between the gear and the hub to absorb an impact on the spindle. Rather, the tool of Butz includes a shaft 42 extending horizontally through a tool body or holder 9 and a miter gear 41 securely fixed to an end of the shaft 42 by a set-screw 43. The tool of Butz also includes a shaft 36 extending vertically through the holder 9 and a miter gear 40 securely fixed to an end of the shaft 36 by a set-screw 39. A flywheel 24 is press fit onto a splined upper end of the shaft 36. Rotational motion is transferred directly from the horizontal shaft 42 and the miter gear 41 to the miter gear 40 and the vertical shaft 36.

Moreover, Butz does not teach or suggest a reciprocating saw including a gear that defines a pocket and includes a gear protrusion in the pocket, and that a portion of the hub is supported in the pocket and includes a hub protrusion drivingly engaging the hub protrusion, and that at least a portion of the structure is positioned between radially overlapping portions of the protrusion. Rather, as mentioned above, the flywheel 24 and the miter gear 40 are securely fixed to the shaft 36.

For these and other reasons, Butz does not teach or suggest the subject matter defined by Claim 41.

Palm does not cure the deficiencies of Butz. Palm does not teach or suggest a reciprocating saw including, among other things, a hub selectively driven by the gear for rotation about the axis, the hub being movable relative to the gear and including a drive member offset from the axis. Rather, the tool 9 of Palm includes an outer hub 716 secured to a shaft 226 and having an inner cylindrical surface 718 and apertures 720 spaced along the inner surface 718. As shown in Fig. 7 of Palm, the outer hub 716 has a smooth front face.

Palm also does not teach or suggest a reciprocating saw including a drive arm pivotably connected to the drive member and the spindle to convert rotation of the hub to reciprocation of the output member. Rather, a lower end of the drive arm 34 of Palm supports a bearing 32 and is secured to the wobble plate member 28. A number of elements, including the drive arm 35 of the secondary wobble plate and a bearing 32 secured to the drive arm 35, are positioned between the drive arm 34 and the inner hub 710 of Palm.

Moreover, Palm does not teach or suggest a reciprocating saw including a gear that defines a pocket and includes a gear protrusion in the pocket, and that a portion of the hub is supported in the pocket and includes a hub protrusion drivingly engaging the hub protrusion, and

that at least a portion of the structure is positioned between radially overlapping portions of the protrusion. Rather, the elements 722 of Palm are supported in apertures 720 formed in the inner cylindrical surface 718 of the outer hub 716 and the outer surface of the inner hub 710. Moreover, as shown in Fig. 7 of Palm, the close engagement between the innermost portions of the inner cylindrical surface 718 of the outer hub 716 and the outermost portions of the inner hub 710, prevents the elements 722 from moving out of the apertures 720 to a position between the innermost portions of the outer hub 716 and the outermost portions of the inner hub 710.

For these and other reasons, Palm does not teach or suggest the subject matter defined by Claim 41.

Knight does not cure the deficiencies of Butz and Palm. Specifically, Knight does not teach or suggest a reciprocating saw including a gear that defines a pocket and includes a gear protrusion in the pocket, and that a portion of the hub is supported in the pocket and includes a hub protrusion drivingly engaging the hub protrusion, and that at least a portion of the structure is positioned between radially overlapping portions of the protrusion. Rather, the pruning saw 10 of Knight includes a shaft 118 supporting a bevel gear 116, which is keyed to the shaft 118, a cam element 120 positioned above the bevel gear 116, and a spring washer 121 positioned below the bevel gear 116 for biasing the bevel gear 116 into frictional engagement with the cam element 120.

Knight also does not teach or suggest a reciprocating saw including structure to absorb impact positioned between the gear and the hub, the structure selectively transmitting drive force from the gear to the hub and allowing relative movement between the gear and the hub to absorb an impact on the spindle. Rather, as mentioned above, the spring washer 121 is positioned *below* the bevel gear 116 of Knight. Moreover, the bevel gear 116 has a smooth upper surface and the cam element 120 has a smooth lower surface to form a mechanical slip clutch. See column 3, lines 28-34.

For these and other reasons, Knight does not teach or suggest the subject matter defined by Claim 41.

The Examiner argues that "[i]t would have been obvious to one of ordinary skill in the art to have modified Butz by employing the elastic force transmitters of King or Iwabuchi instead of the elastic force transmitter of Palm, since they are art recognized equivalents known for the same purpose." See Office action, dated September 12, 2006m section 4. However, Applicants

respectfully submit that it is improper to combine the teachings of King and/or Iwabuchi with the teachings of Butz, Palm, and Knight.

Before addressing the combination asserted by the Examiner, Applicants will address the King reference and the Iwabushi reference. King does not teach or suggest a reciprocating saw including, among other things, a motor supported by the housing and having a drive shaft and a spindle supported by the housing and adapted to support a saw blade. Rather, King discloses a "[f]lexible [coupling]... for transferring torque from output or drive shafts of devices such as an electric motor or internal combustion engine, to input shafts of various machines or devices, such as fans, packaging machines or pumps." King, Column 1, lines 17-21.

King also does not teach or suggest a reciprocating saw including, among other things, a hub including a drive member offset from the axis. Rather, the coupling assembly 10 of King has a linear arrangement and includes circular coupling members 14, 16, a generally circular elastomeric spider 18, and a generally circular housing assembly 12 positioned between the first coupling member 14, the spider 18, and the second coupling member 16.

In addition, King does not teach or suggest a reciprocating saw including, among other things, a drive arm pivotably connected to the drive member and the spindle to convert rotation of the hub to reciprocation of the spindle. Rather, as mentioned above, the circular coupling members 14, 16, the spider 18, and the housing assembly 12 are all arranged along a common axis.

For these and other reasons, King does not teach or suggest all the claim limitations of independent Claim 41.

Iwabuchi also does not cure the deficiencies of Butz, Palm, and Knight. Iwabuchi does not teach or suggest a reciprocating saw including, among other things, a motor supported by the housing and having a drive shaft and a spindle adapted to support a saw blade. Rather, Iwabuchi discloses a transmission buffer for "a motor [used] when a window of an automobile is raised or lowered by the turning force of the motor." Iwabuchi, Column 1, lines 18-20.

Iwabuchi also does not teach or suggest a reciprocating saw including a hub including a drive member offset from the axis. Rather, the power window drive element of Iwabuchi has a linear arrangement and includes a generally circular input rotary body 6, a generally circular output rotary body 11 and a generally circular elastic body 10 positioned between the input rotary body 6 and the output rotary body 11.

In addition, Iwabushi does not teach or suggest a reciprocating saw including a drive arm pivotably connected to the drive member and the spindle to convert rotation of the hub to reciprocating of the spindle. Rather, as mentioned above, the power window drive element of Iwabuchi has a linear arrangement with the output rotary body 11, the elastic body 10, and the input rotary body 6 all being arranged along a common axis.

For these and other reasons, Iwabuchi does not teach or suggest the subject matter defined by Claim 41.

As mentioned above, Applicants respectfully submit that it is not reasonable to combine the teachings of King with the teachings of Butz, Palm, and Knight and that there is no teaching or suggestion to modify the teachings of King as suggested by the Examiner. In addition, Applicants respectfully submit that it is not reasonable to combine the teachings of Iwabushi with the teachings of Butz, Palm, and Knight and that there is no teaching or suggestion to modify the teachings of Iwabushi as suggested by the Examiner

Assuming arguendo that the reciprocating saws of Butz, Palm, and Knight could be modified as suggested by the Examiner, this is not by itself sufficient to support a finding of obviousness. The prior art must provide a motivation, without the benefit of Applicants' specification, to make the necessary changes in the reference device. Ex parte Chicago Rawhide Mfg. Co., 223 U.S.P.Q. at 353. Deficiencies of the reference cannot be saved by appeals to "common sense" and "basic knowledge" without any evidentiary support. In re Zurko, 258 F.3d at 1385, 59 U.S.P.Q.2d at 1697.

The Examiner points to nothing in the prior art, and King is devoid of any teaching or suggestion to modify the coupling of King, which is "used for transferring torque from output or drive shafts of devices such as an electric motor or internal combustion engine, to input shafts of various machines or devices, such as *fans, packaging machines or pumps*", and to combine this modified coupling with the reciprocating saws of Butz, Palm, and Knight. See, column 1, lines 17-22 (emphasis added).

The Examiner also points to nothing in the prior art, and Iwabushi is devoid of any teaching or suggestion to modify the power window drive element of Iwabushi, and to combine this modified coupling with the reciprocating saws of Butz, Palm, and Knight.

As illustrated in Butz, Palm, and Knight and as explained below, there are significant differences between reciprocating saws and fans, packaging machines, pumps, and the drive

element of an automobile window, and these differences present significantly different design considerations, making the suggested combination of the teachings of Butz, Palm, Knight, and King and/or Iwabushi inappropriate.

As a starting point, the motion imparted by the respective drive mechanisms of the reciprocating saw and fans, packaging machines, pumps, and automobile windows affect the design and construction of each. Fans, packaging machines, pumps, automobile windows, and reciprocating saws are each typically powered by an electric motor having a rotary output. In the fans, packaging machines, pumps, and automobile windows of Iwabushi and King, the rotary motion of the motor output is transmitted as rotary motion to a fan blade or the like. Accordingly, the drive mechanisms for such machines are relatively simple. The elements of the gear train all rotate about parallel axes.

In comparison, a reciprocating saw drive mechanism converts the rotary motion of the motor output to reciprocating motion of the spindle (and of the saw blade). As a result, the drive mechanism of the reciprocating saw is more complex. Examples of such saw drive mechanisms include wobble plate drive mechanisms, scotch-yoke drive mechanisms, etc.

The difference between the motion imparted to a linear drive mechanism (e.g., the drive mechanism of a fan, packaging machine, pump, or automobile window) and to the reciprocating saw blade is magnified when the blade binds on the workpiece. The affect of such binding on the drive mechanism of reciprocating saws (and on the operator) is also significantly different. In the linear drive mechanism disclosed in King, any binding will cause motion about the center axis 22, an axis which is parallel to the axes of the elements of the gear train and of the output of the motor. Similarly, in the linear drive mechanism of Iwabushi, any binding will cause motion about a common central axis. In the reciprocating saw, any binding will transmit force along the axis of the reciprocating spindle toward or away from the operator, contrary to the rotary motion of the motor output and contrary to the converting motion of the drive mechanism.

Applicants respectfully submit that the above-described and other significant differences between the design and construction of fans, packaging machines, pumps, and automobile windows and of reciprocating saws provide reasons why one of ordinary skill in the art would not modify the reciprocating saws of Butz, Palm, and Knight to include the coupling spider 18 of King. In addition, Applicants respectfully submit that the above-described and other significant differences between the design and construction of fans, packaging machines, pumps, and

automobile windows and of reciprocating saws provide reasons why one of ordinary skill in the art would not modify the reciprocating saws of Butz, Palm, and Knight to include the coupling elastic body 10 of Iwabushi.

Moreover, Butz teaches away from the modification suggested by the Examiner. As discussed above, in the reciprocating saw of Butz, a flywheel 24 is press fit onto a splined upper end of a shaft 36, and a miter gear 40 is positioned below the flywheel 24 and is securely fixed to a lower end of the shaft 36 by a set-screw 39.

With the proposed modification of Butz, "elements 36, 24, and 29 would be as one with the inner hub, and thus the inner hub would have an eccentric output member (29)." Office action, dated September 12, 2006, section 3. With this proposed modification, the shaft 36 would presumably be integrally formed with either the miter gear 40 or the flywheel 24, outwardly extending protrusions would presumably be added to the underside of the flywheel 24 and the top surface of the miter gear 40, and an elastic element would presumably be positioned between the protrusions of the flywheel 24 and the protrusions of the miter gear 40. However, with this proposed modification, the Examiner fails to disclose how the protrusions of the flywheel 24 and the protrusions of the miter gear 40 would contact each other through the bearing 34. Moreover, if the bearing 34 was removed to accommodate such a modification, the connecting rod 23 and the flywheel 24 would be unsupported during operation and would tilt downwardly toward the lower portion of the saw, thereby disrupting the travel path of the saw blade 10 and rendering the saw inoperable.

In addition, if the flywheel 24 and the miter gear 40 were to be modified as suggested by the Examiner to include these protrusions and to accommodate elastic members between these protrusions, significant portions of the flywheel 24 and the miter gear 40 would have to be removed to provide these protrusions. With the material removed from the flywheel 24 and/or the miter gear 40, the reciprocating saw of Butz may not be able to withstand demolition operations which is, generally, the intended use of a reciprocating saw. If the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. In re Gordon, 733 F.2d at 902, 221 U.S.P.Q. at 1127.

In summary, Butz, Palm, Knight, and King and/or Iwabushi do not teach or suggest the modification suggested by the Examiner and, in fact, the references teach away from such a

combination. It is improper to combine references where the references teach away from such a combination. In re Grasselli, 713 F.2d at 743, 218 U.S.P.Q. at 779. Therefore, Applicants respectfully submit that the Examiner has failed to present a *prima facia* case of obviousness of Claim 41 based upon the prior art as required by 35 U.S.C. § 103.

For these and other reasons, the prior art does not teach or suggest the subject matter defined by independent Claim 41. Accordingly, Claim 41 is allowable. Dependent Claims 61-67 depend from Claim 41 and are allowable for the same and other reasons. In addition, the additional subject matter defined by the dependent claims provides separate bases for allowance.

CONCLUSION

In view of the foregoing, Applicants respectfully request entry of the above amendments and allowance of Claims 20-22, 25-33, 36, 37, 39-41, 44-58 and 59-67.

The undersigned is available for telephone consultation during normal business hours.

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